

REMARKS

After entry of this amendment, claims 32, 33, 36, 39, 43, 44, 57, 58, 62 and 63 are pending. Claims 32, 36, 39, 43 and 57 have been amended without prejudice or disclaimer to presenting the original claims in a subsequent application for examination. The amendments to claim 32 are supported inter alia by original claims 1, 3, and 5 and by the specification at page 23 (formula V) and the description of the symbols found in the sentence bridging pages 12 and 13. New claim 63 is supported by page 24 (formulae VII and VIII). Other claims are amended to be consistent with the amendments to claim 32 and to ensure proper antecedent support, or to correct obvious typographical errors. Claims 34-35, 37-38, 40-42, 45-56 and 59-61 are canceled without prejudice or disclaimer. No new matter has been added.

Elections/Restrictions

Applicants elected Group I, claims 32-60 and 62. Group II, claim 61, was not elected and has been canceled. Applicants respectfully correct the statement on page 2 of the Office Action that claim 62 is withdrawn. Actually, claim 61 was withdrawn and is now cancelled.

Applicants appreciate that the elected species is free of the prior art.

Applicants respectfully disagree with the Examiner's selection of the further species I* to continue with the search and examination. Applicants are entitled to examination of the invention as they chose to claim it. The species I* is not exemplified in the specification and is not a species of Applicants' choosing for further examination. Accordingly, Applicants object to the withdrawal of claims 41, 43-47, 54-58 and 60 as drawn to nonelected species to the extent that some of these claims (43, 44 and 57-58) are not canceled by this amendment. In view of the amendments to claim 32 and the remarks that follow, consideration of all the claims presented herein is respectfully requested.

Objection to the Specification

The Patent Office objects to certain chemical formulae such as formula (V) on page 23 as unclear. Allegedly it is unclear whether the two curving lines that approach each other on the right-hand side of the structure are intended to show a bond between the top EMC and the bottom EMC. Applicants respectfully submit that the two curved lines are not attached in the figure and thus are clearly not linked by a bond. This meaning is evident from the gap between the two curving lines. Also, it is clear that the two EMC chains in figure (V) of claim 32 are not linked to form cycles due to the term “branching” describing the polymer in the claimed composition. Furthermore, in elected compound 90, it is clear that the two EMCs are not connected at the location corresponding to the right-hand side of the figure.

The Patent Office also objects that it is unclear how the elected structure of formula (90) corresponds to the elected formula (V) especially regarding the fragment thereof extending to the right of the “EMC.” As shown in the drawing of compound 90 submitted on May 28, 2009 and again attached to this Amendment, B represents a core with one branch covalently attached to L and four branches which contain oxyethylene groups that are each attached to a capped (“C”) EMC group. It is clear from this figure and from the formula and examples at pages 84-85 that the different EMC groups are linked through “B” but not additionally linked at the end to form cyclic structures. Furthermore, the structure of formula (V) illustrates the cavity formed by the two EMC to accommodate the biologically active moiety. The four EMC chains shown in the attached figure for compound 90 are shown in a linear figure because of the difficulty in drawing a figure having all of the chemical symbols for compound 90 in a figure shaped as formula (V), which allows for viewing the cavity. The chemical structure of compound 90 shows clearly that the four EMC groups are only attached through B and are not attached to make a cyclic structure.

Claim Rejections – 35 USC § 112 Written Description

Claims 32-40, 42, 48-53, 59 and 62 stand rejected as not described in the specification in such a way as to meet the written description requirement. Applicants respectfully disagree.

In finding lack of written description support, the Examiner stated that the claims do not limit the scope of the structure of the composition to a fully structurally defined chemical structure. Office Action, p. 7. Applicants respectfully submit that in view of the amendments to claim 32, this argument no longer applies. As amended, the present claims specify that the composition has the structure of formula (V), which identifies how each element of the composition is connected to the other elements. Furthermore, structure (V) is well developed in the specification at pages 12-13 and 23, and many examples are provided throughout the specification to clarify what the components may be and how they can be selected successfully. Claim 32 is also amended to specify certain chemical components of the substituents, such as that the EMC comprise oxyethylene groups, the capping groups comprise linear, branched or cyclic alkyl groups in which hetero atoms may be present, that the linker L is non-enzymatically cleavable and comprises a carbamate group, and that B contains at least one of $>\text{CH}-$, $>\text{C}<$ and respective analogs thereof wherein H is replaced by an organic group; $>\text{N}-$, or $>\text{P}$. Thus, as amended, the claims recite a specific structure and specific components for the elements of the structure. Therefore, as amended, the claims are specific to a fully defined chemical structure and this ground for asserting lack of written description support no longer applies.

The Patent Office relies upon Giehm et al. (Biopolymers, 2008, 89(6), pp. 522-529) for allegedly teaching that successful combinations of dendrimers and biologically active moieties can only be identified by trial-and-error. Yet as amended, the claimed compositions are completely different from the dendrimers disclosed by Giehm et al. First of all, in Giehm et al. no covalent conjugates are provided. Furthermore, and even more importantly, there is no linkage of the protein by a carbamate-containing linker. Also, the molecular chains of the dendrimer are not ethyleneoxide based. Thus, the dendrimers discussed in Giehm et al. differ significantly in structure and chemical composition from the claimed compositions such that any teachings as to the unpredictability of the Giehm et al. dendrimers do not apply to the presently claimed compositions.

In view of the amendments and the many differences between the dendrimers of Giehm et al. and the presently claimed compositions, reconsideration and withdrawal of the rejection is strongly urged.

Claim Rejections – 35 USC § 112 Definiteness

Claims 32-40, 42, 48-53, 59 and 62 stand rejected as indefinite as allegedly unclear in how the moieties are connected because no structure is provided. Applicants respectfully disagree. However, to expedite prosecution, claim 32 has been amended to provide a structure of formula (V). Furthermore, polymer, core, biologically active moiety, and linker have all been further clarified to recite chemical components or a selection of moieties for each of these elements. Certain of the dependent claims such as claim 35 referring to linear, branched or cyclic alkyl chains as the polymer chains have been canceled. Thus, in view of the amendments to the claims, this rejection is believed to be rendered moot.

Regarding the definiteness rejections of claims 35, 37 and 48, the cancellation of these claims has rendered these rejections moot.

Claims 36, 39, 52, and 53 recite parenthetical terms that the Examiner finds unclear. Applicants respectfully submit that the skilled person in the art would understand the claims as written. Regarding claim 36, the hyphens (“-“) represent bonds such as would be present within a polymer chain. Regarding the recitation that amide is represented by two formula (“amide - C(O)NH- or -C(O)NR-“), Applicants have clarified the location of the hyphen to clearly show that it is before the first carbon and thus is a bond. By using H in the first amide formula and R in the second formula it is understood that in this instance R is unequal to H and rather is a carbon radical as is understood by those of skill in the art. The parentheticals used in claim 36 following the generic name merely further describe by chemical structure what is meant by the generic name. In this manner, the parentheticals are exemplary to show the term in a chemical structure.

Claim 39 is clarified to remove “and” in the list of the three oxyalkylene groups and to add a comma to separate the words.

Claims 37, 52 and 53 are cancelled without prejudice or disclaimer, thereby rendering the indefiniteness rejections as to these claims moot.

The Examiner found the term “sterically demanding” unclear in claim 37. Although claim 37 has been cancelled, rendering this rejection moot, the term appears in amended claim 32. As it is used in amended claim 32, the Examiner is correct that “sterically demanding” is synonymous for “sterically hindering.” As discussed on page 10, lines 20-22 of the specification, capping groups particularly will be present on the EMCs if the EMCs require sterically demanding groups forcing them into certain conformation necessary for the creation of the cavity enclosing the protein.

Claims 40 and 50 were also rejected as indefinite. Because these claims have been canceled without prejudice or disclaimer, the rejection is rendered moot.

Claim Rejections – 35 USC § 102 Gorman

Claims 32-40, 42, 48-53, 59 and 62 stand rejected as anticipated by Gorman (C. R. Chimie, 6 (2003), pp. 911-918. Applicants respectfully disagree. The Examiner relies upon the dendrimer disclosed in Gorman that has at its core a cluster of Fe₄S₄. As amended, the present claims recite compositions having a biologically active moiety that is a protein or polypeptide. For this reason alone, the amended claims are not anticipated by Gorman.

Furthermore, the structure of formula (V) as recited in amended claim 32 is not met by the dendrimer of the iron-sulfur cluster relied upon by the Examiner. The four molecular chains shown in the structure from Gorman relied upon by the Examiner are linked by the iron-sulfur cluster itself so that the cluster represents the core. However, formula (V) does not provide for the active moiety to be the core. Instead, B is the core and is attached to the active moiety P through a non-enzymatically cleavable linker L comprising a carbamate group.

In sum, the composition of the amended claims is not taught in Gorman and the rejection should be withdrawn.

Claim Rejections – 35 USC § 102 van Hest et al.

Claims 32, 33, 35-39, 48 and 49 stand rejected as anticipated by the composition of formula (14) in van Hest et al. (Chem. Eur. J. 1996, 2(12), 1616-1626). Applicants respectfully disagree. As amended, the claims require that the biologically active moiety is a protein or a polypeptide. Because van Hest et al. does not disclose any protein or polypeptide, the claimed invention cannot anticipate the present claims.

CONCLUSION

In view of the amendments and the remarks above, Applicants believe that the claims are in condition for allowance. Reconsideration of the rejection and allowance of the claims is respectfully requested.

Attached to this paper is an authorization to charge the undersigned's credit card the fee for a one-month extension of time (February 7 being a Sunday and February 8 being a day that the PTO was closed due to bad weather).

Application No. 10/574,213
Response to Office Action dated October 7, 2009
Amendment Dated February 9, 2010

Docket No.: 13907-00006-US

Applicants believe no further fee is due with this response. However, if an additional fee is due, please charge our Deposit Account No. 03-2775, under Order No. 13907-00006-US from which the undersigned is authorized to draw.

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Respectfully submitted,

By Christine Hansen

Christine M. Hansen

Registration No.: 40,634

CONNOLLY BOVE LODGE & HUTZ LLP

1007 North Orange Street

P.O. Box 2207

Wilmington, Delaware 19899

(302) 658-9141

(302) 658-5614 (Fax)

Attorney for Applicant

723834

